



KRAMER ELECTRONICS LTD.

# USER MANUAL

MODELS:

**SL-14RC**

Master Controller

**RC-3TB**

Remote Control Panel (Optional)

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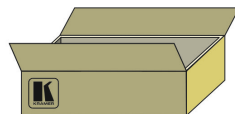
## SL-14RC Quick Start Guide

This page guides you through a basic installation and first-time use of your **SL-14RC**. For more detailed information, see the **SL-14RC** User Manual. You can download the latest manual at <http://www.kramerelectronics.com>.

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### Step 1: Check what's in the box

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> <b>SL-14RC</b> Master Controller | <input checked="" type="checkbox"/> 1 Quick Start sheet |
| <input checked="" type="checkbox"/> 1 Power cord                     | <input checked="" type="checkbox"/> 1 User Manual       |
| <input checked="" type="checkbox"/> 1 Set of rack "ears"             | <input checked="" type="checkbox"/> 4 Rubber feet       |



Save the original box and packaging in case your SL-14RC needs to be returned to the factory for service.

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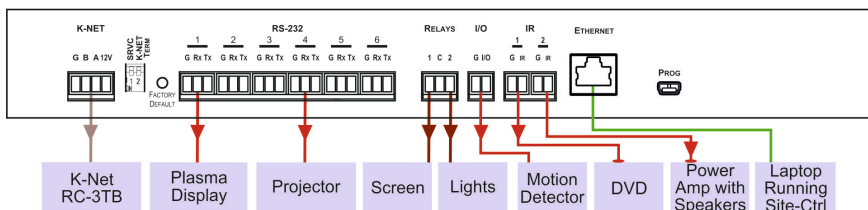
### Step 2: Install the SL-14RC

Mount the machine in a rack (using the included rack "ears") or attach the rubber feet and place on a table.

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### Step 3: Connect the inputs and outputs

Always switch off the power on each device before connecting it to your **SL-14RC**.



Always use Kramer high-performance cables for connecting AV equipment to the **SL-14RC**.

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### Step 4: Connect the power

Connect the power cord to the **SL-14RC** and plug it into the mains electricity.



### Step 5: Configure the SL-14RC

Configure the unit using K-Config software - see the K-Config Configuration Guide.

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### Step 6: Operate the SL-14RC

Operate the unit via the front panel buttons, IR remote control, K-Net or Ethernet.

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# 1 Introduction

Welcome to Kramer Electronics! Since 1981, Kramer Electronics has been providing a world of unique, creative, and affordable solutions to the vast range of problems that confront the video, audio, presentation, and broadcasting professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better!

Our 1,000-plus different models now appear in 11 groups that are clearly defined by function: GROUP 1: Distribution Amplifiers; GROUP 2: Switchers and Matrix Switchers; GROUP 3: Control Systems; GROUP 4: Format/Standards Converters; GROUP 5: Range Extenders and Repeaters; GROUP 6: Specialty AV Products; GROUP 7: Scan Converters and Scalers; GROUP 8: Cables and Connectors; GROUP 9: Room Connectivity; GROUP 10: Accessories and Rack Adapters and GROUP 11: Sierra Products.

Congratulations on purchasing your Kramer **SL-14RC Master Controller**, which is ideal for the following typical applications:

- Controlling multimedia rooms, such as classrooms, auditoriums, conference rooms, and so on, while enabling remote control and management of the AV equipment

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## 2 Getting Started

We recommend that you:

- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment
- Review the contents of this user manual
  - Use Kramer high performance high resolution cables
  - Use the power cord that is supplied with this machine



Go to <http://www.kramerelectronics.com> to check for up-to-date user manuals, application programs, and to check if firmware upgrades are available (where appropriate).

### 2.1 Achieving the Best Performance

To achieve the best performance:

- Use only good quality connection cables to avoid interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables)
- Avoid interference from neighboring electrical appliances that may adversely influence signal quality
- Position your Kramer **SL-14RC** away from moisture, excessive sunlight and dust

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## 3 Overview

The **SL-14RC** is a highly versatile master room controller that acts as an all-in-one extended remote control panel for control of A/V equipment—especially projectors and associated equipment—in any room (such as classrooms, boardrooms, or auditoriums). It streamlines operations and simplifies control by integrating audio, video, and computer-video sources into a centralized system. Optional 3-button remote control panels are available which enable you to remotely duplicate the functionality of front panel buttons.

The **SL-14RC** features:

- 12 configurable front panel buttons (configured using the **K-Config Configuration** software)  
Available from Kramer Electronics on our Web site at:  
<http://www.kramerelectronics.com/support/?soft=k-config>
- 1 configurable rotary up/down controller with direction indicator LEDs (configured using the **K-Config Configuration** software)
- 1 general purpose I/O port that can be configured as an analog input, digital input, or digital output for interfacing with a variety of devices such as sensors, switches, LEDs, and relays
- 6 bi-directional RS-232 ports that can control AV equipment such as projectors, LCD and PDP displays, power amplifiers, switchers and scalers
- 2 relay contacts that can control other room items related to the AV system, such as, raising and lowering drapes, screen or projector
- IR control on 2 outputs (terminal blocks)
- IR Learning that learns commands from any IR remote
- Compatibility with Kramer **Site-CTRL** software for network remote control and management over the Ethernet port
- A **K-NET™** control channel that can be used to connect to **RC-3TB Remote Control Panels**, or for connecting compatible user interfaces and supplies power and control data over a single cable  
K-NET™ is a proprietary Kramer protocol for interconnecting Kramer units
- Flexible control via Ethernet and **K-NET**

## 3.1 Defining the SL-14RC Master Controller

This section defines the **SL-14RC**.

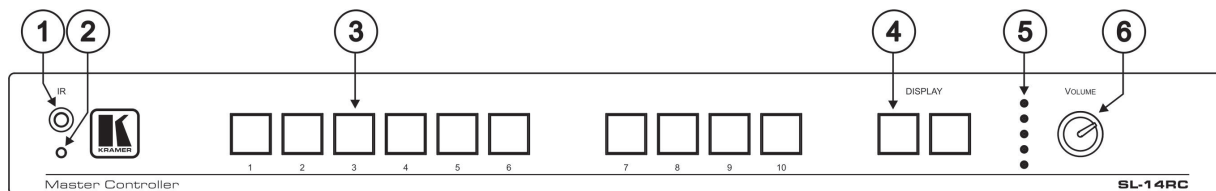


Figure 1: SL-14RC Master Controller Front Panel

#	Feature	Function
1	IR Receiver	Accepts IR control
2	ON LED	Lights during IR activity
3	Configurable Button Switches 1-10	Function is programmed by the K-Config Configuration software
4	DISPLAY Configurable Button switches 11 and 12	Function is programmed by the K-Config Configuration software
5	Rotary switch up/down LED indicator	Indicates the direction of travel of the rotary switch
6	VOLUME Rotary Knob	Function is programmed by the K-Config Configuration software



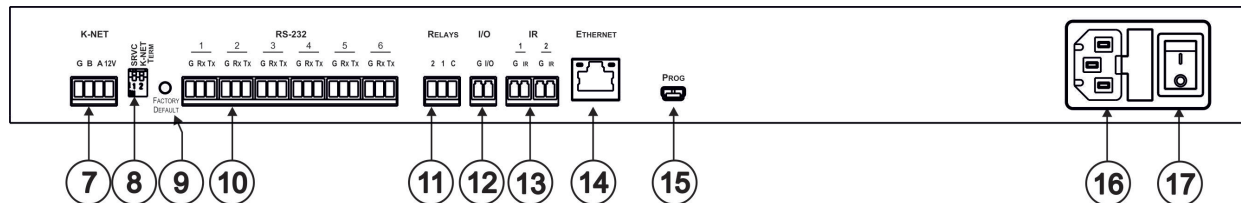


Figure 2: SL-14RC Master Controller Rear Panel

#	Feature	Function
7	K-NET Connector	Connect the GND pin to the Ground connection; pin B (-) and pin A (+) are for RS-485, and the +12V pin is for powering the unit The ground connection is sometimes connected to the shield of the RS-485 cable (in most applications, it is not connected)
8	SRVC and K-NET TERM DIP-Switches	For service use only. Slides down for K-NET termination, slides up for not terminated
9	FACTORY DEFAULT Button	Press to reset to factory default definitions (see <a href="#">Section 9</a> ) First switch off the unit and then switch it on while pressing the DEFAULT button. The unit powers up and loads its memory with the factory default definitions and erases all stored presets
10	RS-232 Terminal Blocks	Connect to the RS-232 devices (from 1 to 6)
11	RELAYS Terminal Blocks	Connect to low-voltage relay-driven devices (from 1 to 2)
12	I/O Terminal Block	Connect to various analog and digital sensors
13	IR Output Terminal Blocks	Connect to IR emitter cables (from 1 to 2)
14	ETHERNET RJ-45 Connector	Connects to the PC or other serial controller through computer LAN
15	PROGRAM USB Connector	Connects to a PC for software upgrading
16	Power Receptacle	Connects to mains power
17	Power ON/OFF Switch	Illuminated switch for turning the unit on and off

**Note:** In earlier versions the USB connector is accessed via the front panel by removing the four front panel screws.

# 4 Defining the RC-3TB Remote Control Panel (Optional)

Figure 3 defines the RC-3TB.

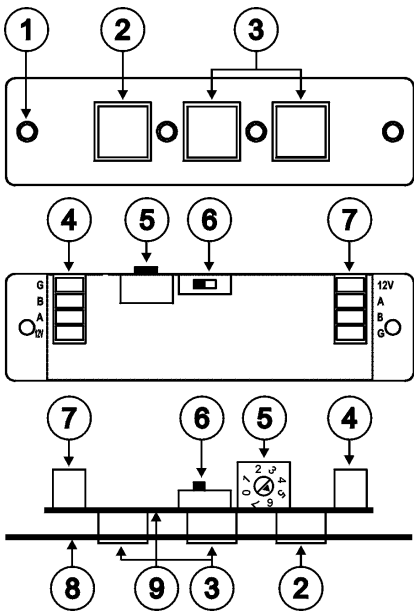


Figure 3: RC-3TB Remote Control Panel Components

#	Feature	Function
1	Mounting Holes	2 holes for mounting the RC-3TB to the PTBUS-3 or TBUS-6W
2	Button 1	Function is always assigned to button 12 on SL-14RC
3	Buttons 2 and 3	Function is assigned by the rotary switch position
4	K-NET Connector	Connects to either SL-14RC or additional RC-3TB
5	8 Position Rotary Switch	For assigning which buttons on the SL-14RC are emulated by the buttons on the RC-3TB
6	K-NET Termination Switch	Terminates the K-NET to RC-3TB daisy-chain
7	K-NET Connector	Connects to either SL-14RC or additional RC-3TB
8	Front Panel	For mounting the RC-3TB
9	Printed Circuit Board	Contains the components of the RC-3TB

When configuring the **SL-14RC** with **K-Config** (version 1.0.1.X and up), you can choose to use the K-Net port for connecting K-Net compatible user interfaces (for example, **RC-62/RC-63/RC-53** series) or to connect to the **RC-3TB**.

If there is no K-Net auxiliary device specified in the **K-Config** control room tree, the **K-Net** port of the **SL-14RC** will be configured to connect to an **RC-3TB**.

When using the **RC-3TB**, button 1 is always assigned to the second DISPLAY button (button number 12) on the **SL-14RC**. The position of the rotary switch (in the following table) determines which of the 12 buttons on the **SL-14RC** are emulated by buttons 2 and 3 on the **RC-3TB**.

Rotary Switch Position	Button 1	Button 2	Button 3
0	12	7	8
1	12	7	9
2	12	7	10
3	12	8	9
4	12	8	10
5	12	9	10
6	12	7	9
7	Service use only		

For example, if the rotary switch is in position 4, the 3 buttons on the **RC-3TB** will duplicate the functions of buttons 12, 8, and 10 on the **SL-14RC**. That is, in this example, pressing button 1 on the **RC-3TB** has the same effect as pressing button 12 on the **SL-14RC**, pressing button 2 on the **RC-3TB** has the same effect as pressing button 8 on the **SL-14RC**, and pressing button 3 on the **RC-3TB** has the same effect as pressing button 10 on the **SL-14RC**.

**Note:** The rotary switch configuration is only read at switch on. Therefore, when changing the rotary switch position, you must switch off the **SL-14RC** and then switch it on again for the new settings to take effect.

For connecting the **RC-3TB**, see [Section 6.3](#).

## 5 Installing in a Rack

This section provides instructions for rack mounting the unit.

**Before installing in a rack**, be sure that the environment is within the recommended range:

OPERATING TEMPERATURE:	0° to +55°C (32° to 131°F)
STORAGE TEMPERATURE:	-45° to +72°C (-49° to 162°F)
HUMIDITY:	10% to 90%, RHL non-condensing



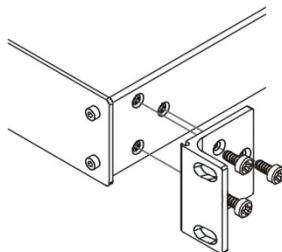
### CAUTION!

When installing on a 19" rack, avoid hazards by taking care that:

1. It is located within the recommended environmental conditions, as the operating ambient temperature of a closed or multi unit rack assembly may exceed the room ambient temperature.
2. Once rack mounted, enough air will still flow around the machine.
3. The machine is placed straight in the correct horizontal position.
4. You do not overload the circuit(s). When connecting the machine to the supply circuit, overloading the circuits might have a detrimental effect on overcurrent protection and supply wiring. Refer to the appropriate nameplate ratings for information. For example, for fuse replacement, see the value printed on the product label.
5. The machine is earthed (grounded) in a reliable way and is connected only to an electricity socket with grounding. Pay particular attention to situations where electricity is supplied indirectly (when the power cord is not plugged directly into the socket in the wall), for example, when using an extension cable or a power strip, and that you use only the power cord that is supplied with the machine.

### To rack-mount a machine:

1. Attach both ear brackets to the machine. To do so, remove the screws from each side of the machine (3 on each side), and replace those screws through the ear brackets.



2. Place the ears of the machine against the rack rails, and insert the proper screws (not provided) through each of the four holes in the rack ears.

#### Note:

- In some models, the front panel may feature built-in rack ears
- Detachable rack ears can be removed for desktop use
- Always mount the machine in the rack before you attach any cables or connect the machine to the power
- If you are using a Kramer rack adapter kit (for a machine that is not 19"), see the Rack Adapters user manual for installation instructions available from our Web site

## 6 Connecting the SL-14RC



Always switch off the power to each device before connecting it to your **SL-14RC**. After connecting your **SL-14RC**, connect its power and then switch on the power to each device.

To connect the **SL-14RC** as illustrated in the example in [Figure 4](#):

1. Connect the RELAY terminal block connectors as follows:
  - Connect RELAY 1 to the lighting system
  - Connect RELAY 2 to the screen
2. Connect the I/O port to a motion detector.
3. Connect the IR outputs as follows:
  - Connect an IR emitter to IR OUTPUT 1 and attach the emitter to the DVD player
  - Connect an IR emitter to IR OUTPUT 2 and attach the emitter to the power amplifier
4. Connect the RS-232 ports (see [Section 6.1](#)) as follows:
  - Connect RS-232 port 1 to the projector
  - Connect RS-232 port 3 to the plasma display
5. Connect the Ethernet port to a network (see [Section 6.2](#)).
6. Connect the **K-NET** port to the input of the first **RC-3TB** (see [Section 6.3](#)).
7. Connect the output of the first **RC-3TB** to the input of the second **RC-3TB** (see [Section 6.3.2](#)).

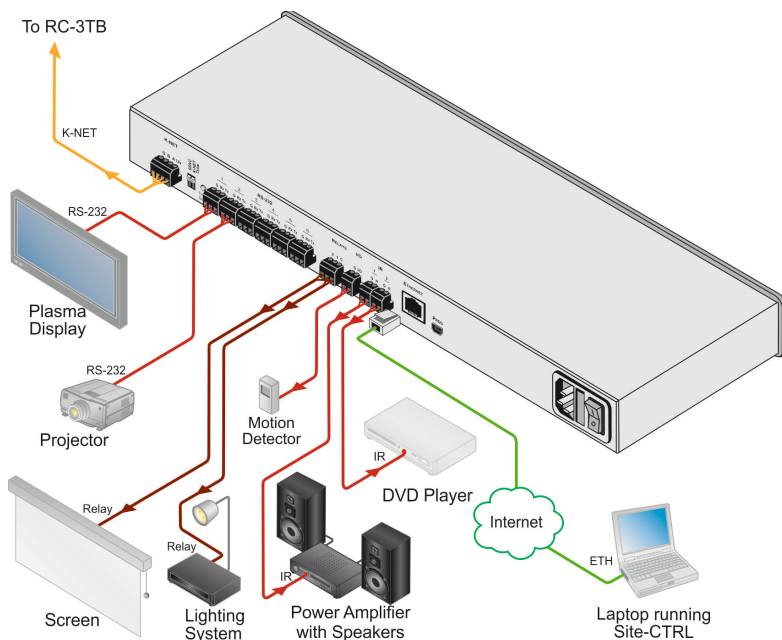


Figure 4: Connecting the SL-14RC Master Controller

## 6.1 Connecting the RS-232 Interface

To connect an AV device to the **SL-14RC** using the RS-232 port, connect the RS-232 9-pin D-sub port on your AV device to the RS-232 terminal block on the rear panel of the **SL-14RC** as shown in [Figure 5](#).

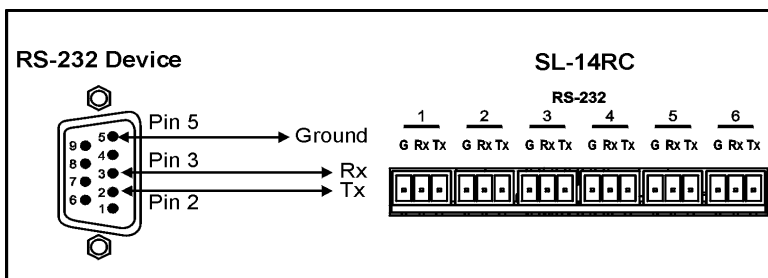


Figure 5: RS-232 Connection

## 6.2 Connecting the Ethernet Port

The Ethernet connection of the **SL-14RC** lets you perform all control functions of the **SL-14RC** over the Internet using a PC running the Kramer Site-CTRL control program.

To connect the **SL-14RC** to a network:

1. Connect the Ethernet port of the **SL-14RC** to the Ethernet port on a network hub or network router, via a straight cable with RJ-45 connectors.
2. At the other end, connect the Internet to a PC running **Site-CTRL**.
3. After connecting the Ethernet port, you have to install and configure it. For detailed instructions on how to install and configure your Ethernet port, see the *K-Config Software Guide* available from our Web site at [www.kramerelectronics.com](http://www.kramerelectronics.com).

## 6.3 Connecting RC-3TB Remote Control Panels (Optional)

One or more **RC-3TB** panels may be connected to the **K-NET** port on the **SL-14RC** in a daisy-chain configuration.

The wiring from a **K-NET** port to a single **RC-3TB** is shown in [Figure 6](#).

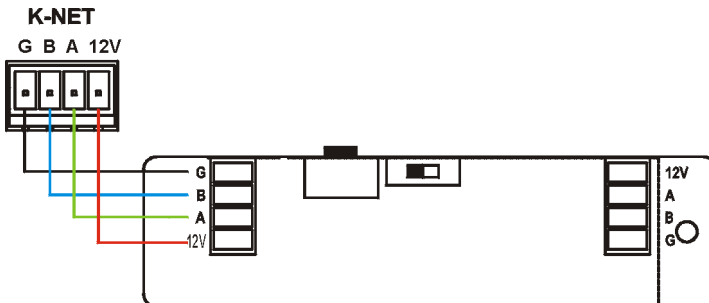


Figure 6: K-NET to RC-3TB Connection

### 6.3.1 Terminating RC-3TB Remote Control Panels

If only one **RC-3TB** is connected, it must be terminated and the termination on the **SL-14RC** is turned off (see [Section 4](#)). When viewed from above and the rotary switch is to the left of the termination switch, slide the termination switch to the left as shown in [Figure 6](#).

Only the last **RC-3TB** in the chain should be terminated.

### 6.3.2 Daisy-Chaining Multiple RC-3TB Remote Control Panels

The wiring of two **RC-3TB** panels to the **K-NET** port on the **SL-14RC** is shown in [Figure 6](#). Connection of more than two **RC-3TB** panels follows the same principle.

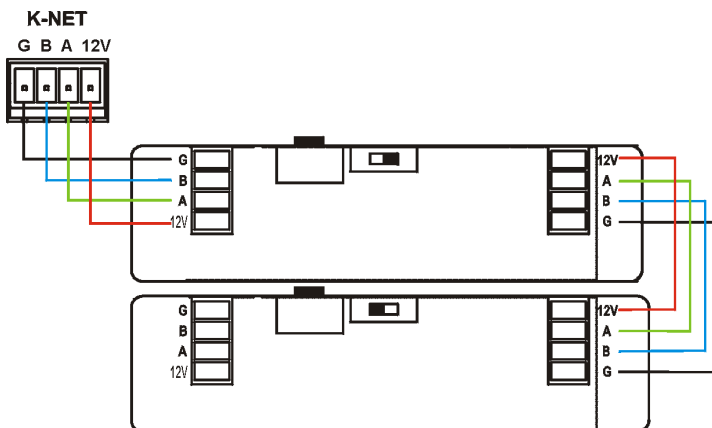


Figure 7: Daisy-chaining Multiple RC-3TB Panels

Note the position of the termination switch on the first **RC-3TB** (open, to the right), and that of the second **RC-3TB** (closed, to the left).

Connections to an **SL-14RC** or to another **RC-3TB** can be made to either connector block as the connector blocks are functionally identical.



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## 7 Operating the SL-14RC

You can operate your **SL-14RC** using:

- Front panel buttons. These are configured using the **K-Config** software. For instructions on using the software, see the *K-Config Software Guide* available from our Web site at [www.kramerelectronics.com](http://www.kramerelectronics.com)
- **RC-3TB** Remote Control Panels (optional)
- A PC running **Site-CTRL** control software:  
To operate your device using **Site-CTRL**, see the *Site-CTRL User Guide* available at the Kramer Web site

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## 8 Front Panel Button Caps and Labels

The **SL-14RC** is supplied with a button label sheet and 12 clear, button caps to house the labels. [Figure 8](#) illustrates a sample button label sheet.



Figure 8: Sample Button Label Sheet

## 8.1 Installing the Front Panel Button Caps and Labels

**To install the button caps and labels:**

1. Remove the required labels from the supplied button label sheet.
2. Remove the supplied button caps from the bag and insert the labels into the button caps.
3. Taking care that the button is oriented correctly, gently press the button cap on to the required button of the **SL-14RC**.
4. Repeat for all the button caps.

## 8.2 Replacing the Front Panel Button Labels

**Note:** The button caps are a press fit on the buttons and must be removed carefully or the buttons may be damaged. Remove the button caps only with the supplied button cap suction removal tool.

**To replace the front panel button labels:**

1. Using the supplied button cap suction removal tool, gently pull the button cap away from the button. Do not use excessive force.
2. Remove the required labels from the supplied button label sheet.
3. Remove the old label from inside the button and insert the new label into the button cap.
4. Taking care that the button is oriented correctly, gently press the button cap on to the button of the **SL-14RC**.

## 9 Technical Specifications

### SL-14RC

INPUTS:	1 K-NET and 6 RS-232 on terminal block connectors 1 Ethernet on RJ-45 connector 1 infrared
OUTPUTS:	2 relays (36V AC or DC, 2A, 60VAC maximum on non-inductive load) 1 GPI/O 2 IR ports on terminal block connectors
DEFAULT IP SETTINGS	IP number – 192.168.1.39; Mask – 255.255.0.0; Gateway – 0.0.0.0
POWER SOURCE:	100-240VAC 22VA
OPERATING TEMPERATURE:	0° to +55°C (32° to 131°F)
STORAGE TEMPERATURE:	-45° to +72°C (-49° to 162°F)
HUMIDITY:	10% to 90%, RHL non-condensing
DIMENSIONS	48.3cm x 11.5cm x 1U (19" x 4.5" x 1U) W, D, H (SL-14RC) 8.9cm x 2.1cm x 2.3cm (3.5" x 0.8" x 0.9") W, D, H (RC-3TB)
WEIGHT:	0.6kg (1.4lbs) approx. (SL-14RC) 0.1kg (0.22lbs) approx. (RC-3TB)
ACCESSORIES:	Power cord, rack "ears"
OPTIONS:	RC-3TB Remote Control Panel, IR emitter cables
Specifications are subject to change without notice at <a href="http://www.kramerelectronics.com">http://www.kramerelectronics.com</a>	

### RC-3TB

DIMENSIONS	8.9cm x 2.1cm x 2.3cm (3.5" x 0.8" x 0.9") W, D, H
WEIGHT:	0.1kg (0.22lbs) approx.

## LIMITED WARRANTY

We warrant this product free from defects in material and workmanship under the following terms.

### HOW LONG IS THE WARRANTY

Labor and parts are warranted for seven years from the date of the first customer purchase.

### WHO IS PROTECTED?

Only the first purchase customer may enforce this warranty.

### WHAT IS COVERED AND WHAT IS NOT COVERED

Except as below, this warranty covers all defects in material or workmanship in this product. The following are not covered by the warranty:

1. Any product which is not distributed by us or which is not purchased from an authorized Kramer dealer. If you are uncertain as to whether a dealer is authorized, please contact Kramer at one of the agents listed in the Web site [www.kramerelectronics.com](http://www.kramerelectronics.com).
2. Any product, on which the serial number has been defaced, modified or removed, or on which the WARRANTY VOID IF TAMPERED sticker has been torn, reattached, removed or otherwise interfered with.
3. Damage, deterioration or malfunction resulting from:
  - i) Accident, misuse, abuse, neglect, fire, water, lightning or other acts of nature
  - ii) Product modification, or failure to follow instructions supplied with the product
  - iii) Repair or attempted repair by anyone not authorized by Kramer
  - iv) Any shipment of the product (claims must be presented to the carrier)
  - v) Removal or installation of the product
  - vi) Any other cause, which does not relate to a product defect
  - vii) Cartons, equipment enclosures, cables or accessories used in conjunction with the product

### WHAT WE WILL PAY FOR AND WHAT WE WILL NOT PAY FOR

We will pay labor and material expenses for covered items. We will not pay for the following:

1. Removal or installations charges.
2. Costs of initial technical adjustments (set-up), including adjustment of user controls or programming. These costs are the responsibility of the Kramer dealer from whom the product was purchased.
3. Shipping charges.

### HOW YOU CAN GET WARRANTY SERVICE

1. To obtain service on you product, you must take or ship it prepaid to any authorized Kramer service center.
2. Whenever warranty service is required, the original dated invoice (or a copy) must be presented as proof of warranty coverage, and should be included in any shipment of the product. Please also include in any mailing a contact name, company, address, and a description of the problem(s).
3. For the name of the nearest Kramer authorized service center, consult your authorized dealer.

### LIMITATION OF IMPLIED WARRANTIES

All implied warranties, including warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this warranty.

### EXCLUSION OF DAMAGES

The liability of Kramer for any effective products is limited to the repair or replacement of the product at our option. Kramer shall not be liable for:

1. Damage to other property caused by defects in this product, damages based upon inconvenience, loss of use of the product, loss of time, commercial loss; or:
2. Any other damages, whether incidental, consequential or otherwise. Some countries may not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights, which vary from place to place.

**NOTE:** All products returned to Kramer for service must have prior approval. This may be obtained from your dealer.

This equipment has been tested to determine compliance with the requirements of:

- EN-50081: "Electromagnetic compatibility (EMC);  
generic emission standard.  
Part 1: Residential, commercial and light industry"
- EN-50082: "Electromagnetic compatibility (EMC) generic immunity standard.  
Part 1: Residential, commercial and light industry environment".
- CFR-47: FCC\* Rules and Regulations:  
Part 15: "Radio frequency devices  
Subpart B Unintentional radiators"

### CAUTION!

➤ Servicing the machines can only be done by an authorized Kramer technician. Any user who makes changes or modifications to the unit without the expressed approval of the manufacturer will void user authority to operate the equipment.

➤ Use the supplied DC power supply to feed power to the machine.

➤ Please use recommended interconnection cables to connect the machine to other components.

\* FCC and CE approved using STP cable (for twisted pair products)



For the latest information on our products and a list of Kramer distributors, visit our Web site where updates to this user manual may be found.

**We welcome your questions, comments, and feedback.**

Web site: [www.kramerelectronics.com](http://www.kramerelectronics.com)

E-mail: [info@kramerel.com](mailto:info@kramerel.com)



#### **SAFETY WARNING**

Disconnect the unit from the power supply before opening and servicing